Remarks/Arguments

Examiner Timothy J. Henn is thanked for the continued thorough Search and Examination of the Subject Application for Patent.

Reconsideration of the Rejection of Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40 under 35 U.S.C. 103(a) as being unpatentable over von Stein et al. (US 6,529,243) in view of Hashimoto (US 4,768,085) in view of Ogawa et al. (US 7,142,,233) in view of Roberts (US 5,541,654) is requested. Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40 describe a color imaging system for compensating a color response. Key elements of Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40 are analog amplification and compensation of a first color component, analog amplification and compensation of a second color component, an analog summing amplifier for summing two elements associated with a third color component and outputting an analog sum of the two elements associated with the third color component, analog amplification and compensation of the sum of the two elements associated with the third color component, and an array controller adapted to control the readout of the elements associated with the first, second and third color components. Analog amplification and compensation comprises color interpolation, on-the-fly color compensation, and/or fixed pattern noise reduction so that white balance amplifiers or a white balance controller is not needed or used. Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40 do not describe the use of white balance amplifiers or a white balance controller and the systems and methods of Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35,

36, 39, and 40 do not require nor use white balance amplifiers or white balance controllers.

The invention of von Stein et al. describes a method for electronic reduction of the contrast of video images as early as during recording. As indicated by Examiner Henn, von Stein et al. show in Fig. 1 three controllable amplifiers 7a, 7b, and 7c. The video signals for the colors red, green, and blue are output individually and are amplified or attenuated in synchronism and in and in parallel using these three controllable amplifiers, see column 4, lines 16-22.

The Examiner has argued that Von Stein et al. discloses an imaging system which includes three controllable amplifiers; amplifiers 7a, 7b, and 7c in Fig. 1; which can be considered the equivalent of analog compensation units. The Examiner further argues that the imaging system disclosed by von Stein et al. does not require the use of white balance amplifiers or white balance controllers. We respectfully disagree for the following reasons. The system disclosed by von Stein et al. in Column 4, lines 7-45 and shown in Fig. 1, uses an array of reflecting and partially reflecting mirrors to split the incident beam into three component parts of red, green and blue. Color sensors; 3a, 3b, and 3c; detect these three colors and send three color signals to three amplifiers; 7a, 7b, and 7c. However, von Stein et al. also show in Fig. 1 that part of the incident beam which has not been separated into color components is passed through a diffuser 4b and directed using a mirror 4c to a detector 4a. The output of the detector 4a is sent to and Evaluation and Control Circuit 7. The output of the Evaluation and Control Circuit 7

is sent as a control signal to the three color amplifiers; 7a, 7b, and 7c. It is believed that the Evaluation and Control Circuit 7 plays the same role and thus is the same as a white balance amplifier and a white balance controller and makes Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40 significantly different from the imaging system disclosed by Von Stein et al.

Hashimoto describes an image sensing apparatus which has the ability to read adjacent horizontal lines sequentially and simultaneously; column 3, lines 59-65. However in processing the signals produced by the pixels in the adjacent horizontal lines in the array Hashimoto uses two white balance amplifiers, 4 and 5, and a white balance controller, WB, see Fig. 3 and column 4, lines 55-59. Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40 are significantly different from Hashimoto because the systems and methods described by Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40 use analog amplification, summation, and compensation; which comprises color interpolation, on-the-fly color compensation, and/or fixed pattern noise reduction so that white balance amplifiers or a white balance controller is not needed or used. Hashimoto does not make analog amplification and compensation of a first color component, analog amplification and compensation of a second color component, an analog summing amplifier for summing two elements associated with a third color component and outputting an analog sum of the two elements associated the third color component, analog amplification and compensation of the sum of the two elements associated with the third color component, and an array controller adapted to control the readout of the elements associated with the first, second and third color components; described by

Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40; an obvious extension of von Stein et al. Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40 are significantly different from Hashimoto because the systems and methods described by Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40 use analog amplification, summation, and compensation and do not use nor require the use of white balance amplifiers or white balance controllers.

Ogawa et al. describe an image pickup element including a plurality of photo detectors each having a color filter array, a vertical direction selection circuit, a horizontal direction selection circuit, and an output circuit. Roberts describes an imaging device which includes the ability to scan the pixels in windows of the array, or sub-arrays, more frequently than the pixels in the rest of the array; column 10, lines 9-21. However Ogawa et al. and Roberts do not make analog color amplification, analog summation, and analog compensation without the use of white balance amplifiers or white balance controllers an obvious extension of von Stein et al. in view of Hashimoto.

It is believed that analog color amplification, analog summation, and analog compensation comprising color interpolation, on-the-fly color compensation, and/or fixed pattern noise reduction so that white balance amplifiers or a white balance controller are not needed or used make Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40 patentably distinct from von Stein et al. in view of Hashimoto in view of Ogawa et al. in view of Roberts. Reconsideration of the Rejection of Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40 under 35 U.S.C. 103(a) as being unpatentable

over von Stein et al. in view of Hashimoto in view of Ogawa et al. in view of Roberts; and allowance of Claims 1, 3, 4, 6-8, 12-20, 22, 26, 28-33, 35, 36, 39, and 40; are requested.

Reconsideration of the Rejection of Claims 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over von Stein et al. (US 6,529,243) in view of Hashimoto (US 4,768,085) in view of Ogawa et al. (US 7,142,233) in view of Roberts (US 5,541,654) as applied to Claim 7 and further in view of Zhou et al. (IEEE) is requested. Key elements of Claims 9 and 10 are analog amplification and compensation of color components and signals wherein analog amplification and compensation comprises color interpolation, on-the-fly color compensation, and/or fixed pattern noise reduction so that white balance amplifiers or a white balance controller is not needed or used. It is believed that analog amplification and compensation are not described nor obvious from von Stein et al. in view of Hashimoto in view of Ogawa et al. in view of Roberts.

It is believed that Claims 9 and 10 are different from and not obvious from von Stein et al. in view of Hashimoto in view of Ogawa et al. in view of Roberts for the reasons given above in the response to the rejection of Claims1 and 7. As indicated by the Examiner, with reference to Zhou et al., programmable gain amplifiers contained within the pixel circuitry and within a plurality of column buffers is known. However, it is believed that Zhou et al. do not make analog color amplification, analog summation, and analog compensation wherein analog amplification and compensation comprises color interpolation, on-the-fly color compensation, and/or fixed pattern noise reduction so

that white balance amplifiers or a white balance controller is not needed or used, as is described in Claims 9 and 10, an obvious extension of von Stein et al. in view of Hashimoto in view of Ogawa et al. in view of Roberts. Reconsideration of the Rejection of Claims 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over von Stein et al. in view of Hashimoto in view of Ogawa et al. in view of Roberts and further in view of Zhou et al., and allowance of Claims 9 and 10, are requested.

Reconsideration of the Rejection of Claim 23 under 35 U.S.C. 103(a) as being unpatentable over von Stein et al. (US 6,529,243) in view of Hashimoto (US 4,768,085) in view of Ogawa et al. (US 7,142,233) in view of Roberts (US 5,541,654), as applied to Claim 1, and further in view of Sano et al. (IEEE) is requested. Key elements of Claim 23 are analog amplification and compensation of a first color component, analog amplification and compensation of a second color component, an analog summing amplifier for summing two elements associated with a third color component and outputting an analog sum of the two elements associated the third color component, analog amplification and compensation of the sum of the two elements associated with the third color component, and an array controller adapted to control the readout of the elements associated with the first, second and third color components, wherein analog amplification and compensation comprises color interpolation, on-the-fly color compensation, and/or fixed pattern noise reduction so that white balance amplifiers or a white balance controller is not needed or used.

It is believed that Claim 23 is different from and not obvious from von Stein et al. in view of Hashimoto in view of Ogawa et al. in view of Roberts for the reasons given above in the response to the rejection of Claim 1. As indicated by the Examiner, with reference to Sano et al., the use of a micro-lenses layer is known. However, it is believed that Sano et al. do not make analog color amplification, analog summation, and analog compensation wherein analog amplification and compensation comprises color interpolation, on-the-fly color compensation, and/or fixed pattern noise reduction so that white balance amplifiers or a white balance controller is not needed or used, as is described in Claim 23, an obvious extension of von Stein et al. in view of Hashimoto in view of Ogawa et al. in view of Roberts. Reconsideration of the Rejection of Claim 23 under 35 U.S.C. 103(a) as being unpatentable over von Stein et al. in view of Hashimoto in view of Ogawa et al. in view of Roberts, and further in view of Sano et al.; and allowance of Claim 23; are requested.

In summary it is believed that Claims 1, 3, 4, 6-10, 12-20, 22, 23, 26, 28-33, 35, 36, 39, and 40 distinguish patentably from the references because they describe analog amplification, summation, and compensation and do not use nor require the use of white balance amplifiers or white balance controllers. Allowance of Claims 1, 3, 4, 6-10, 12-20, 22, 23, 26, 28-33, 35, 36, 39, and 40 is requested.

It is requested that should Examiner T. J. Henn not find that the Claims are now Allowable that the Examiner call the undersigned Attorney at (845)-452-5863 to overcome any problems preventing allowance.

Respectfully submitted,

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